CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

The U.S. Department of Energy (DOE) has been assembling and testing heat sources (HSs) and radioisotope thermoelectric generators (RTGs) at the Mound Site (Mound) in Miamisburg, Ohio, for the past 35 years and 15 years, respectively. The RTGs use a thermoelectric process to convert the heat from the HS to electricity. Other methods of conversion are being developed and could be used in the future. The term radioisotope power system (RPS) is now used to encompass the RTG and any potential future conversion processes. Together the HS and the RPS form an HS/RPS assembly. An HS/RPS converts thermal energy that is generated by the spontaneous radioactive decay of Plutonium 238 (Pu-238) to electrical energy. The HS/RPSs have repeatedly demonstrated their value as key enabling technologies in various harsh, remote, and inaccessible environments such as space, where it is impractical to provide the fuel and maintenance that more conventional electrical power sources would need. Pu-238 is a non-weapons usable isotope of plutonium. While Pu-238 is not weapons grade and cannot be fabricated into a nuclear weapon, it is toxic, radioactive, and a special nuclear material requiring security and safeguards.

Mound was established beginning in 1946 as the first permanent facility associated with the Atomic Energy Commission (AEC), predecessor to the Energy Research and Development Administration and DOE. AEC and its successor agencies manufactured critical nuclear weapons components at Mound. In 1993, DOE decided to environmentally restore the Mound site with the goal of releasing the site for civilian commercial use. Programs other than the HS/RPS operations were transferred to other DOE sites. The HS/RPS operations continued at Mound along with the clean-up and environmental restoration activities. While there were other programs at Mound that required security and safeguards, the security costs at the site were spread among all such programs. With the transfer of these other programs to different DOE sites and the ongoing clean-up activities at Mound, the HS/RPS operations will bear more of the security and safeguard costs.

In 1998, DOE began an environmental impact statement (EIS) to evaluate potential impacts of relocating HS/RPS operations at an alternative DOE site. While the EIS was being prepared, DOE proposed to continue HS/RPS operations at Mound to consolidate operations from several buildings to a smaller footprint. DOE evaluated the optimum configuration of operations at Mound in the *Environmental Assessment (EA) for the Consolidation of Heat Source/Radioisotope Thermoelectric Generator (HS/RTG) Assembly and Testing Operations at Mound* (DOE/EA 1343) (Mound Consolidation EA) (DOE 1999a) and decided to consolidate HS/RPS operations into a small area in the eastern part of the site. While environmental restoration activities encompassed the rest of the Mound Site, only activities associated with the HS/RPS operations would take place within this small area. This small area is referred to as the HS/RPS operations area at Mound.

Pursuant to a DOE complex-wide safeguards and security review, Mound has been identified for the implementation of additional security and safeguards measures. The HS/RPS Program, as presently configured, may not be able to bear the cost of these additional measures. Therefore, the Department is undertaking this NEPA review to decide the future location for its HS/RPS operations. This EA has been prepared in accordance with the Council on Environmental Quality's (CEQ) *National Environmental Policy Act* (NEPA) Implementing Regulations at 40 Code of Federal Regulations (CFR) Parts 1500 through 1508, and DOE's NEPA Implementing Procedures at 10 CFR Part 1021.

With the information gathered during the preparation of the Draft EIS and the Mound Consolidation EA, DOE had a better understanding of the potential environmental impacts associated with the HS/RTG operations at the Mound Site and the potential impacts of their relocation. With this greater understanding, DOE determined that an EA was the appropriate level of NEPA documentation in which to evaluate the potential impacts of the relocation. DOE has prepared this EA to decide whether to issue a Finding of No Significant Impact (FONSI) or whether to prepare an EIS.

1.2 PURPOSE AND NEED FOR AGENCY ACTION

It is DOE's responsibility to maintain the capability to produce HS/RPSs. The radioisotope Pu-238 used as a heat source in HS/RPSs is a special nuclear material requiring security and safeguards. After the terrorist attacks of September 11, 2001, DOE reviewed the security and safeguards for operations and material at all of its sites. Due to additional security measures mandated by these reviews, the security and safeguards costs at Mound have increased considerably. These additional costs could render continuation of the HS/RPS Program, as currently configured, impractical. Hence, DOE is evaluating proposed future locations for the HS/RPS Program at sites that have suitable facilities and the added security/safeguards infrastructure in place for other ongoing programs. The alternatives under consideration include continuation of the current operations at Mound with added security and safeguards (the "No Action" alternative), consolidation of operations into the T-Building at Mound, relocation to the Pantex Plant (Pantex), located near Amarillo, Texas, or relocation to the Argonne National Laboratory-West (ANL-W), located on the Idaho National Engineering and Environmental Laboratory (INEEL) site near Idaho Falls, Idaho. After consideration of the comments received at the public scoping meetings and analysis of currently available information for the alternatives under consideration, DOE has identified ANL-W as the preferred alternative site for relocation of HS/RPS operations.

The Pu-238 and finished HS/RPSs are being transferred offsite on an interim basis to ANL-W to provide for extra security and safeguards. DOE conducted a separate NEPA review for transfer of these materials to ANL-W.

1.3 PUBLIC INVOLVEMENT

The Notice of Intent (NOI) to prepare this EA was published in the *Federal Register* (FR) on May 31, 2002 (67 FR 38083). In the NOI, it was announced that the scoping period would last 21 days from the date of the announcement, or until June 21, 2002. However, some of the scoping meetings could not be arranged to occur within the announced period. On June 21, 2002, DOE extended the public scoping period to July 5, 2002 (67 FR 42242). Scoping comments received during the public meetings and public scoping period were considered in the preparation of this EA.

Public scoping meetings were held in Arlington, Virginia (Washington, DC, metropolitan area) on June 18, 2002, Miamisburg, Ohio, on June 20, 2002, Amarillo, Texas, on June 24, 2002, and Idaho Falls, Idaho, on June 26, 2002.

This EA wash~~as been~~ sent to the designated points of contact for the States of Idaho, Ohio, and Texas and interested parties. The availability of the Predecisional Draft EA wash~~as also been~~ announced in the *Federal Register*. The public comment period ~~will~~ ended on August 20, 2002. ~~Where appropriate and to the extent practicable, concerns and comments will be considered in the Final EA.~~Comments were received from several reviewers. The comments ranged from ~~desires~~requests for more detailed information involving particular resource areas to differing points of view on the eventual choice among the alternatives.

These comments were considered in ~~context of~~ the assessment of the ~~significance of the~~environmental impacts associated with the potential relocation of the HS/RPS operations. Changes were made to this EA where appropriate and are indicated by sidebars. This EA ~~did~~does not include any discussion of costs or the relate~~d~~~~ive~~ programmatic issues. Comments on these issues were not considered part of the scope of this EA.